REMARKS

This Response is submitted in response to the Final Office Action mailed on July 9, 2009, and the telephone interview courteously granted on November 3, 2009. Claims 1 and 8-16 are pending in the application. The Office Action rejected Claims 1 and 8-16 under 35 U.S.C. §103. Claims 1, 8 and 14 are amended herein. Claims 17-19 are newly added. The Director is authorized to charge any additional fees which may be required, or to credit any overpayment to Deposit Account No. 02-1818. If such a withdrawal is made, please indicate the Attorney Docket No. 112857-517 on the account statement.

In the Office Action, Claims 1, 8-10, 12-14 and 16 are rejected under 35 U.S.C. §103(a) as being unpatentable over Japanese Patent Publication No. 10-3990 to Nakamura et al. ("*Nakamura*") of record by the applicant in view of in view of "White-light-emitting organic electroluminescent devices based on interlayer sequential energy transfer," Applies Physics Letters Vol. 75, No. 7 to Forrest et al. ("*Forrest*"). Of the rejected claims, Claims 1, 8, 14 and 16 are the sole independent claims. Claims 1, 8 and 14 have been amended to delete the amendments made in response to the previous Office Action. These elements have been reintroduced as new dependent Claims 17-19, respectively. Applicants respectfully disagree with and traverse the rejections, as set forth in detail below.

As discussed in the Background section of the present application, *Nakamura* discloses an OLED device for emitting white light having a configuration in which a blue light emitting layer, a green light emitting layer, and a red light emitting layer are laminated in this order from the hole transport layer side. (See, Specification, [0003]). This is the complete opposite order of light emitting layers than that which is recited in Claims 1, 8, 14 and 16. The Office Action admits that *Nakamura* "does not teach the red light emitting layer is formed on the anode." (See, Office Action, pg. 3).

The white light emitting organic EL device with the configuration in *Nakamura* has the problem that the emission spectrum is largely varied with current and that the luminous efficacy and the half life of luminance are insufficient for display use. (See, Specification, paragraph [0004]). In addition, the organic EL device is insufficient in balance of respective luminous intensities in blue, green and red wavelength regions. (See, Specification, paragraph [0004]). Therefore, it has been impossible by use of such organic EL devices to obtain a display

comparable in color reproduction performance with a CRT. (See, Specification, paragraph [0004]).

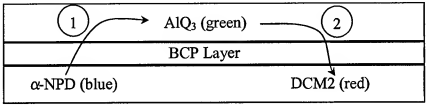
In the presently claimed invention, there is provided an organic EL device characterized by the configuration of an organic layer sandwiched between an anode and a cathode. (See, Specification, paragraph [0006]). Specifically, light emitting layers constituting the organic layer include a red light emitting layer, a green light emitting layer, and a blue light emitting layer laminated in this order from the anode side. (See, Specification, paragraph [0006]). In the organic EL device configured as above, holes (positive holes) injected from the anode is supplied into the light emitting layers from the red light emitting layer side. (See, Specification, paragraph [0007]). On the other hand, electrons injected from the cathode are supplied into the light emitting layers from the blue light emitting layer side. (See, Specification, paragraph [0007]). Therefore, the regions where the holes injected from the anode and the electrons injected from the cathode are coupled, i.e., light emission regions are respectively in the red, green, and blue light emitting layers, and each of the light-emitting layers emits light with the corresponding wavelength. (See, Specification, paragraph [0007]). Particularly, the lamination of the red light emitting layer, the green light emitting layer, and the blue light emitting layer in this order from the anode side permits a configuration such that the injection of holes and electrons as well as the light emission regions can be controlled and that the emission efficacy is higher and the half life of luminance is longer, as compared with the case where a blue light emitting layer, the green light emitting layer, and a red light emitting layer are laminated in this order from the hole transport layer side, such as in *Nakamura*. (See, Specification, paragraph [0007]).

Therefore, *Nakamura* fails to disclose or suggest each of the elements of amended Claims 1, 8, 14, 16 and dependents thereof. Accordingly, the Office Action relies on *Forrest* to remedy the deficiencies of *Nakamura*.

During the telephone interview, the Examiners clarified their position regarding their interpretation of the secondary *Forrest* reference, and the alleged teachings regarding the number, the color, and the orderings of the light emitting layers in same. In particular, the Examiners indicated that the phrase "[t]he excitation energy is transferred sequentially from α-NPD, to AlQ_3, to DCM2, *twice* across the thin BCP layer" implies that *Forrest* discloses three

separate layers that correspond to a blue layer, a green emitting layer, and a red emitting layer formed respectively in that order. (See also, *Forrest*, pg. 889, col. 2, first full paragraph). However, upon further review of Forrest, it is clear that this section is in fact only referring to two light emitting layers, and not three.

In this regard, the α-NPD and DCM2 are combined as a first layer, with α-NPD (i.e., red) being doped with DCM2 (i.e., blue), and this single layer is separated from a second AlQ_3 layer by a single BCP layer. The sentence "[t]he excitation energy is transferred sequentially from NPD, to AlQ_3, to DCM2, *twice* across the thin BCP layer" describes what *Forrest* refers to as "inter-layer sequential energy transfer," as opposed to "cascade energy transfer," as discussed in further detail below. With regard to the "inter-layer sequential energy transfer" described in this paragraph, "energy is transferred in a sequential fashion **between species** present in different layers." (See, Id.). Applicants have created a visual aid below to depict the two-step transference of excitation energy between the two light emitting layers, as it is understood based on the disclosure in *Forrest* (this is not a figure that has been reproduced from *Forrest*, and does imply any ordering of the layers with respect to any other portions of the light emitting device). The first step in the inter-layer sequential energy transfer is from the α-NPD in the first light emitting layer, through the BCP layer, and into the AlQ_3 of the second light emitting layer. The second step in the inter-layer sequential energy transfer is from the AlQ_3 of the second light emitting layer, back through the BCP layer a second time, and into the DCM2 of the first light emitting layer. As such, the **α-NPD and DCM2 are two species in the same light emitting layer**.



This depiction is consistent with the statement in *Forrest* that "[t]he excitation energy is transferred sequentially from NPD, to AlQ_3, to DCM2, *twice* across the thin BCP layer." Moreover, *Forrest* contrasts "inter-layer sequential energy transfer" from "cascade energy

transfer," where the energy "transfer takes place between molecules present in **spatially separate layers**." (Id., emphasis added). Therefore, Applicants respectfully submit that the Examiners' position that the sentence "[t]he excitation energy is transferred sequentially from α-NPD, to AlQ_3, to DCM2, *twice* across the thin BCP layer" implies that there are three separate (RBG) layers is incorrect. In contrast, *Forrest* appears to be entirely focused on white light emitting products having only two light-emitting layers, where the α-NPD material (blue) is doped with the red-emitting DCM2 (red). (See, *Forrest*, pg. 889, col. 1, lines 4-10; pg. 888, col. 2, lines 18-21).

As also discussed during the telephone interview, the Examiners indicated that with regard to the last sentence of paragraph 2, col. 2, on pg. 889 of *Forrest*, "the thin BCP also allows for the return of the excitation back from AlQ_3 to DCM2 in the HTL" implies that the DCM2 has hole transporting properties, which further implies that the DCM2 (red light-emitting layer) must be positioned on the anode side. At this stage, based on the arguments regarding the number of light-emitting layers in *Forrest* discussed above, Applicants abstain from commenting on whether or not it can be inferred that a DCM2 (red) layer is positioned on the anode side in *Forrest*.

Accordingly, for at least the reasons above, *Forrest* fails to cure the deficiencies of *Nakamura*, even assuming that the references are properly combinable.

Moreover, Applicants respectfully submit that it would not be obvious the modify the color ordering of the light emitting layers disclosed in the *Nakamura* reference with any alleged alternative color ordering scheme disclosed in Forrest because *Nakamura* teaches away from same. In particular, *Nakamura* explicitly discloses that "[a]s for the laminating order of B, G, and R, it is preferred from the resorption of light being small to use order of B/G/R from the side which takes out light." (See, *Nakamura*, para. [0018] and Fig. 1).

Accordingly, Applicants respectfully request that the rejection of Claims 1, 8-10, 12-14 and 16 under 35 U.S.C. §103(a) to *Nakamura* and *Forrest* be withdrawn.

In the Office Action, Claims 11 and 15 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Nakamura* in view of *Forrest* and further in view of U.S. Patent No. 6,198,217 to Suzuki et al. ("*Suzuki*"). The Patent Office relies on *Suzuki* merely as support for incorporating a protective layer into the organic EL device of *Nakamura* as required, in part, by

Claims 11 and 15. (See, Office Action, page 8, lines 1-10). Thus, Applicants respectfully submit that, even if properly combinable, *Suzuki* fails to remedy the deficiencies of *Nakamura* and *Forrest* with respect to Claims 11 and 15.

Accordingly, Applicants respectfully request that the rejection of Claims 11 and 15 under 35 U.S.C. §103(a) to *Nakamura*, *Forrest* and *Suzuki* be withdrawn.

For the foregoing reasons, Applicants respectfully submit that the present application is in condition for allowance and earnestly solicit reconsideration of same.

Respectfully submitted,

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Dated: November 3, 2009